

## Refine Search

### Search Results -

Terms	Documents
L1 and \$therapy	2

Database:

US Pre-Grant Publication Full-Text Database  
 US Patents Full-Text Database  
 US OCR Full-Text Database  
 EPO Abstracts Database  
 JPO Abstracts Database  
 Derwent World Patents Index  
 IBM Technical Disclosure Bulletins

Search:

L5





### Search History

DATE: Monday, May 09, 2005    [Printable Copy](#)    [Create Case](#)

**Set Name Query**  
side by side

**Hit Count Set Name**  
result set

*DB=USPT,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR*

<u>L5</u>	L1 and \$therapy	2	<u>L5</u>
<u>L4</u>	photosensitizer same (pluronic)	7	<u>L4</u>
<u>L3</u>	L1 and (emulsion or micelle)	7	<u>L3</u>
<u>L2</u>	L1 and 424/450.ccls.	0	<u>L2</u>
<u>L1</u>	photosensitizer same (\$block adj1 \$polymer)	110	<u>L1</u>

END OF SEARCH HISTORY

## Hit List

Clear

Generate Collection

Print

Fwd Refs

Bkwd Refs

Generate OACS

Search Results - Record(s) 1 through 2 of 2 returned.

☐ 1. Document ID: US 6693093 B2

Using default format because multiple data bases are involved.

L5: Entry 1 of 2

File: USPT

Feb 17, 2004

US-PAT-NO: 6693093

DOCUMENT-IDENTIFIER: US 6693093 B2

TITLE: Drug delivery systems for photodynamic therapy

DATE-ISSUED: February 17, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Chowdhary; Rubinah K.	Vancouver			CA
Dolphin; David	Vancouver			CA

US-CL-CURRENT: 514/185; 424/486

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	RUAC	Draws De
------	-------	----------	-------	--------	----------------	------	-----------	--	--	--------	------	----------

☐ 2. Document ID: US 20040102430 A1, WO 200185212 A2, AU 200158095 A, US 20020155089 A1, US 6693093 B2

L5: Entry 2 of 2

File: DWPI

May 27, 2004

DERWENT-ACC-NO: 2002-139409

DERWENT-WEEK: 200435

COPYRIGHT 2005 DERWENT INFORMATION LTD

TITLE: Composition useful for conducting photodynamic therapy comprises a photosensitizer and a block copolymer in liquid form, to form a complex with the photosensitizer

INVENTOR: CHOWDHARY, R K; DOLPHIN, D ; DOLPHIN, D H

PRIORITY-DATA: 2000US-202641P (May 8, 2000), 2001US-0851641 (May 8, 2001), 2003US-0688090 (October 17, 2003)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 20040102430 A1</u>	May 27, 2004		000	A61K031/555
<u>WO 200185212 A2</u>	November 15, 2001	E	079	A61K041/00

<u>AU 200158095 A</u>	November 20, 2001	000	
<u>US 20020155089 A1</u>	October 24, 2002	000	A61K031/74
<u>US 6693093 B2</u>	February 17, 2004	000	A61K031/00

INT-CL (IPC): A01 N 55/02; A61 K 9/14; A61 K 31/00; A61 K 31/555; A61 K 31/74; A61 K 41/00; A61 K 47/48; A61 N 1/30

Full	Title	Citation	Front	Review	Classification	Date	Reference		Claims	KWAC	Draw D
------	-------	----------	-------	--------	----------------	------	-----------	--	--------	------	--------

[Clear](#)[Generate Collection](#)[Print](#)[Fwd Refs](#)[Bkwd Refs](#)[Generate OACS](#)

Terms	Documents
L1 and \$therapy	2

**Display Format:**[Change Format](#)[Previous Page](#)[Next Page](#)[Go to Doc#](#)

[First Hit](#) [Fwd Refs](#)[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

Generate Collection

Print

L2: Entry 13 of 31

File: USPT

Aug 17, 1999

DOCUMENT-IDENTIFIER: US 5939453 A

**\*\* See image for Certificate of Correction \*\***

TITLE: PEG-POE, PEG-POE-PEG, and POE-PEG-POE block copolymers

Detailed Description Text (4):

"Active agent" includes any compound or mixture of compounds which produces a beneficial or useful result. Active agents are distinguishable from such components as vehicles, carriers, diluents, lubricants, binders and other formulating aids, and encapsulating or otherwise protective components. Examples of active agents are pharmaceutical, agricultural or cosmetic agents., Suitable pharmaceutical agents include antigens, antibodies, vaccines, hormones (for example, estrogens, progestins, androgens, adrenocortical steroids, insulin, erythropoietin and the like), vitamins, enzymes, proteins, naturally occurring or bioengineered substances, anti-infectives (including antibiotics, antivirals, fungicides, scabicides or pediculicides), antipsychotic agents (for example, phenothiazines including chlorpromazine, trifluorpromazine, mesoridazine, piperacetazine and thioridazine; thioxanthenes including chlorprothixene; and the like), anti-anxiety agents (for example, benzodiazepines including diazepam, alprazolam, clonazepam, oxazepam; and barbiturates), anti-depressants (including tricyclics, monoamine oxidase inhibitors, serotonin reuptake inhibitors, and others, including imipramine, amitriptyline, doxepin, nortriptyline, amoxapine, tranlycypromine, phenelzine, and the like), stimulants (for example, methylphenidate, doxapram, nikethamide, and the like), narcotics (for example, morphine, meperidine, codeine, and the like), analgesic-antipyretics and anti-inflammatory agents (for example, aspirin, ibuprofen, naproxen, and the like), local anesthetics (for example, procaine, lidocaine, tetracaine, and the like), fertility control agents, anticancer agents (including the anthracycline antibiotics such as doxorubicin, daunorubicin, and epirubicin, mitomycin C, dactinomycin, tamoxifen, paclitaxel and its analogs such as docetaxol, platinum analogs such as cisplatin and carboplatin, anticancer proteins such as neocarzinostatin and L-asparaginase, photosensitizers for photodynamic therapy, alkylating agents such as cyclophosphamide, mechlorethamine, melphalan, chlorambucil, carmustine, and lomustine, antimetabolites such as methotrexate, alkaloids such as vinblastine, vincristine, and vindesine, 5-fluorouracil, thioguanine, streptozocin, bleomycin, and the like), cardiovascular and anti-hypertensive agents (for example, procainamide, amyl nitrite, nitroglycerin, propranolol, metoprolol, prazosin, phentolamine, trimethaphan, captopril, enalapril and the like), drugs for the therapy of pulmonary disorders, anti-epilepsy agents (for example, phenytoin, ethosin and the like), antipruritics, astringents, anti-hidrotics, keratolytic agents, keratoplastic agents, rubefacients, sunscreens, pigmentation agents or emollients. The term "active agents" further includes biocides such as fungicides, pesticides, and herbicides, plant growth promoters or inhibitors, preservatives, disinfectants, air purifiers and nutrients.

Detailed Description Text (50):

The triblock copolymers of formula II are also formed in a two-step synthesis. In the first step, an excess of the diketene acetal of formula IV is reacted with a diol of the formula HO--R.sup.4 --OH or HO--R.sup.5 --OH or a mixture thereof, to form a POE block which is terminated at each end with a diketene acetal unit, giving an intermediate of formula VI ##STR9## where r is p-2. In the second step,

the intermediate of formula VI is reacted with two equivalents of PEG or an RPEG to form the triblock copolymer of formula II.

Detailed Description Text (51):

Since the diketene acetal and the diol react in essentially a 1:1 ratio to form the POE block of the triblock copolymer, but diketene acetal termination of the POE block is desired, the quantities of the diketene acetal and the diol are chosen so that the molar amount of diketene acetal is slightly greater than the molar amount of the diol. The molar ratio of PEG/RPEG to POE block should be approximately 2:1, but an excess of PEG/RPEG may be used, as it may be easily separated from the polymer after completion of the reaction.

Detailed Description Text (54):

The triblock copolymers of formula III are also formed in a two-step synthesis. In the first step, a PEG of the formula  $H-[OCH_2CH_2]_m-OH$  is reacted with an excess of a diketene acetal of formula IV to form an intermediate of formula VII. In the second step, a diol of the formula  $HO-R-OH$  or  $HO-R-OH$ , or a mixture thereof, is reacted with the solution of the first step (containing the intermediate of formula VII and the excess diketene acetal) to extend the POE blocks, thereby forming the triblock copolymer of formula III.

Detailed Description Text (58):

In an alternative synthesis of the triblock copolymer of formula III, POE blocks terminated with diketene acetal units (intermediates of formula VI) are prepared, and reacted with 0.5 molar equivalent of PEG to terminate each end of the PEG with the POE blocks.

Detailed Description Text (71):

While any of the anticancer agents that can form micellar complexes are suitable for this use, anticancer agents that are particularly suitable for micellar tumor targeting are those with low water solubility or high aromatic content, such as the anthracycline antibiotics (e.g. doxorubicin, daunorubicin, and epirubicin), mitomycin C, paclitaxel and its analogs (e.g. docetaxol), platinum analogs (e.g. cisplatin and carboplatin), and the like. Other agents may include anticancer proteins, such as neocarzinostatin, L-asparaginase, and the like, and photosensitizers used in photodynamic therapy.

Detailed Description Text (111):

In a glove box, 4.372 g (20.6 mmol) DETOSU and 2.307 g (16 mmol) CDM are weighed into a 100 mL flask and dissolved in 25 mL THF. One drop of a 25 mg/mL solution of PTSA in THF is added to initiate the reaction. When the reaction mixture has cooled to room temperature, 8 g (4 mmol) PEG 2000 is added. The solution is gently warmed until all the PEG has fully dissolved, and three drops of the PTSA solution are added. The flask is capped with a rubber septum and heated in an oil bath at 70.degree. C. for 30 minutes. A further three drops of the PTSA solution are added and the flask heated for an additional 30 minutes. After cooling to room temperature, the solution is added dropwise to 1 L hexane with stirring to precipitate the triblock copolymer. The copolymer is dried in a vacuum oven.

[Previous Doc](#)

[Next Doc](#)

[Go to Doc#](#)

[First Hit](#) [Fwd Refs](#)[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

Generate Collection

Print

L3: Entry 22 of 24

File: USPT

Apr 1, 1997

DOCUMENT-IDENTIFIER: US 5616342 A

**\*\* See image for Certificate of Correction \*\***

TITLE: Emulsioin suitable for administering a poorly water-soluble photosensitizing compound and use thereof

Brief Summary Text (5):

Photodynamic activity begins when the photosensitizer is exposed to light of a specific wavelength. This light, usually but not necessarily generated by a laser and transmitted through a specially designed fiber optic, activates the intracellular drug. Activation results in the formation of cytotoxic species (free radicals and/or singlet oxygen) which rapidly and selectively destroy the cells in which the photosensitizer is located. Certain wavelengths of light are optimal for therapeutic destruction of rapidly proliferating cells, while other wavelengths induce a visible fluorescence and are therefore ideal for diagnostic identification of these cells.

Brief Summary Text (6):

A new generation of photosensitizers is currently under investigation or development for use in photodynamic therapy. These include chlorins (such as benzoporphyrin derivatives), purpurins, and phthalocyanines, all of which have strong hydrophobic characteristics. Extensive animal studies have shown that such poorly water-soluble pyrrole-derived macrocycles tend to maximize both diagnostic and therapeutic specificity by virtue of a high retention differential between abnormal and normal cells. While the water solubility of porphyrins can be enhanced by suitable derivatization, a significant loss of tissue specificity may occur. Therefore, simple aqueous/alcohol solutions of relatively water-soluble pyrrole-based macrocycles have proven to be much less useful.

Brief Summary Text (7):

These new generation photosensitizers often pose serious challenges to achieving suitable formulation. For more lipophilic porphyrins, dimethylsulfoxide (DMSO)/water solutions are suitable for preliminary studies either in vitro or in vivo. However, for clinical applications, dimethylsulfoxide is not considered to be an appropriate vehicle. Micellar preparations of poorly water-soluble porphyrin derivatives may be made, using the non-ionic surfactant Cremophor EL (polyoxyethylated castor oil), but serious anaphalactoid reactions have been reported and premedication with steroids may be required. Various organic solvent mixtures (e.g. polyethylene glycol, propylene glycol, t-butanol, dimethylacetamide) will also solubilize certain lipophilic porphyrin derivatives. However, such systems are often associated with pain on injection and phlebitis, due in part to local vein irritation by the solvent and to drug precipitation upon dilution in the bloodstream. In addition, these solvents are poorly metabolizable and are associated with other undesirable toxic side effects.

Detailed Description Text (9):

The emulsion of the present invention also contains a stabilizer such as phosphatides, soybean phospholipids, non-ionic block copolymers of polyoxyethylene and polyoxypropylene (e.g. poloxamers), synthetic or semi-synthetic phospholipids, and the like. The preferred stabilizer is purified egg yolk phospholipid.

Other Reference Publication (1):

Richter et al., Liposomal Delivery of a Photosensitizer, Benzoporphyrin Derivative Monoacid Ring A (BPD), to Tumor Tissue in a Mouse Tumor Model, Photochemistry and Photobiology, vol. 57, No. 6, (1993), pp. 1000-1006.

[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

[First Hit](#) [Fwd Refs](#)[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)

Generate Collection

Print

L4: Entry 5 of 8

File: USPT

Jan 23, 2001

DOCUMENT-IDENTIFIER: US 6176842 B1

TITLE: Ultrasound assembly for use with light activated drugs

Drawing Description Text (58):FIG. 17B-2 illustrates possible texaphyrin derivation sites.Drawing Description Text (63):FIG. 22 schematically summarizes the synthesis of an oligonucleotide conjugate of a texaphyrin metal complex.Drawing Description Text (64):FIG. 23 illustrates the covalent coupling of texaphyrin metal complexes with amine, thiol, or hydroxy linked oligonucleotides.Drawing Description Text (66):FIG. 25 illustrates the synthesis of a texaphyrin based light activated drug.Detailed Description Text (7):

Localized delivery of the light activated drug also permits treatment of tissue sites which do not have selective uptake of the light activated drug. As discussed above, many light activated drugs, such as the texaphyrins, are taken up by most tissues within the body and later localize within lipid rich tissues. As a result, a non-lipid rich tissue site can be treated by delivering the ultrasound energy to the tissue site before the light activated drug has an opportunity to localize in lipid rich tissues.

Detailed Description Text (10):

In one preferred embodiment, the light activated drug includes an oligonucleotide acting as a site specific molecule coupled with a texaphyrin. The oligonucleotide can have an affinity for a targeted site on a DNA strand. For instance, the oligonucleotide can be designed to have complementary Watson-Crick base pairing with the targeted DNA site. Activation of the light activated drug after the conjugate has bound the targeted DNA site can cause cleavage of the DNA strand at the targeted DNA site. As a result, the activated conjugate can be used for cleavage of targeted DNA sites. The light activated conjugate can be targeted to a site on viral DNA where activation of the light activated conjugate causes the virus to be killed. Similarly, the light activated conjugate can be targeted to oncogenes. Other applications of targeted DNA cleavage include, but are not limited to, antisense applications, specific cleavage and subsequent recombination of DNA; destruction of viral DNA; construction of probes for controlling gene expression at the cellular level and for diagnosis; and cleavage of DNA in footprinting analyses, DNA sequencing, chromosome analysis, gene isolation, recombinant DNA manipulations, mapping of large genomes and chromosomes, in chemotherapy and in site directing mutagenesis.

Detailed Description Text (84):

The above catheters are suitable for locally delivering a media including a light activated drug. Suitable light activated drugs include, but are not limited to, fluorescein, merocyanin. However, preferred light activated drugs include xanthene and its derivatives and the photoreactive pyrrole-derived macrocycles and their



derivatives due to a reduced toxicity and an increased biological affinity. Suitable photoreactive pyrrole-derived macrocycles include, but are not limited to, naturally occurring or synthetic porphyrins, naturally occurring or synthetic chlorins, naturally occurring or synthetic bacteriochlorins, synthetic isobacteriochlorins, phthalocyanines, naphthalocyanines, and expanded pyrrole-based macrocyclic systems such as porphycenes, sapphyrins, and texaphyrins. Examples of suitable pyrrole-based macrocyclic classes are illustrated in FIG. 17A.

#### Detailed Description Text (85):

As described above, the derivative of the pyrrole-based macrocycle classes can be used. For the purposes of illustrating some of the derivatives a macrocycle class, FIG. 17B illustrates a formula for the derivatives of texaphyrin: where M is H, CH.sub.3, a divalent metal cation selected from the group consisting of Ca(II), Mn(II), Co(II), Ni(II), Zn(II), Cd(II), Hg(II), Fe(II), Sm(II), and UO(II) or a trivalent metal cation selected from the group consisting of Mn(III), Co(III), Ni(III), Fe(III), Ho(III), Ce(III), Y(III), In(III), Pr(III), Nd(III), Sm(III), Eu(III), Gd(III), Tb(III), Dy(III), Er(III), Tm(III), Yb(III), Lu(III), La(III), and U(III). Preferred metals include Lu(III), Dy(III), Eu(III), or Gd(III). M may be H or CH.sub.3 in a non-metalated form of texaphyrin. R.sub.1, R.sub.2, R.sub.3, R.sub.4, R.sub.5 and R.sub.6 can independently be hydrogen, hydroxyl, alkyl, hydroxyalkyl, alkoxy, hydroxyalkoxy, saccharide, carboxyalkyl, carboxyamidealkyl, a site-directing molecule, or a linker to a site-directing molecule where at least one of R.sub.1, R.sub.2, R.sub.3, R.sub.4, R.sub.5 and R.sub.6 is hydroxyl, hydroxyalkoxy, saccharide, alkoxy, carboxyalkyl, carboxyamidealkyl, hydroxyalkyl, a site-directing molecule or a couple to a site-directing molecule; and N is an integer less than or equal to 2.

#### Detailed Description Text (89):

For the above-described texaphyrins, hydroxyalkoxy may be alkyl having independently hydroxy substituents and ether branches or may be C.sub.(n-x) H.sub.((2n+1)-2x) O.sub.x O.sub.y or OC.sub.(n-x) H.sub.((2n+1)-2x) O.sub.x O.sub.y where n is a positive integer from 1 to 10, x is zero or a positive integer less than or equal to n, and y is zero or a positive integer less than or equal to ((2n+1)-2x). The hydroxyalkoxy or saccharide may be C.sub.n H.sub.((2n+1)-q) O.sub.y R.sub.a.sub.q, OC.sub.n H.sub.((2n+1)-q) O.sub.y R.sub.a.sub.q or (CH.sub.2).sub.n CO.sub.2 R.sub.a where n is a positive integer from 1 to 10, y is zero or a positive integer less than ((2n+1)-q), q is zero or a positive integer less than or equal to 2n+1, and R.sub.a is independently H, alkyl, hydroxyalkyl, saccharide, C.sub.(m-w) H.sub.((2m+1)-2w) O.sub.w O.sub.z, O.sub.2 CC.sub.(m-w) H.sub.((2m+1)-2w) O.sub.w O.sub.z or N(R)OCC.sub.(m-w) H.sub.((2m+1)-2w) O.sub.w O.sub.z. In this case, m is a positive integer from 1 to 10, w is zero or a positive integer less than or equal to m, z is zero or a positive integer less than or equal to ((2m+1)-2w), and R is H, alkyl, hydroxyalkyl, or C.sub.m H.sub.((2m+1)-r) O.sub.z R.sub.b.sub.r where m is a positive integer from 1 to 10, z is zero or a positive integer less than ((2m+1)-r), r is zero or a positive integer less than or equal to 2m+1, and R.sub.b is independently H, alkyl, hydroxyalkyl, or saccharide.

#### Detailed Description Text (92):

Exemplary texaphyrins are listed in Table 1.

#### Detailed Description Text (101):

A linker may be used to couple the light activated drug with the site directing molecule. Exemplary linkers include, but are not limited to, amides, amine, thioether, ether, or phosphate covalent bonds as described in the examples for attachment of oligonucleotides. In a preferred embodiment, an oligonucleotide or other site-directing molecules is covalently bonded to a texaphyrin or other light activated drugs via a carbon-nitrogen, carbon-sulfur, or a carbon-oxygen bond.

#### Detailed Description Text (104):

The emulsion can also contains a stabilizer such as phosphatides, soybean

phospholipids, nonionic block copolymers of polyoxethylene and polyoxpropylene (e.g. poloxamers), synthetic or semi-synthetic phospholipids, and the like. The preferred stabilizer is purified egg yolk phospholipid. The stabilizer is usually present in the composition in amounts of about 0.1 to about 10, and preferably about 0.3 to about 3 grams/100 ml, a typical example being about 1.5 grams/100 ml.

Detailed Description Text (170):

Example 1 describes the synthesis of a preferred texaphyrin derivative. Examples 2-4 describe different light activated drugs conjugated with oligonucleotides as site directing molecules. Examples 5 and 6 describes a synthesis of an emulsion including a light activated drug. Example 7 describes preparation of microbubbles which include a light activated drug.

Detailed Description Text (172):

Synthesis of Texaphyrin T2BET Metal Complexes

Detailed Description Text (173):

The synthesis of texaphyrins is provided in U.S. Pat. Nos. 4,935,498, 5,162,509 and 5,252,720, all incorporated by reference herein. The present example provides the synthesis of a preferred texaphyrin, named T2BET, having substituents containing ethoxy groups.

Detailed Description Text (182):

Synthesis of the Lutetium(III) Complex of Formula H: The macrocyclic ligand Formula H is oxidatively metalated using lutetium(III) acetate hydrate (9.75 g, 0.0230 mol) and triethylamine (22 mL) in air-saturated methanol (1500 mL) at reflux. After completion of the reaction (as judged by the optical spectrum of the reaction mixture), the deep green solution is cooled to room temperature, filtered through a pad of celite, and the solvent removed under reduced pressure. The dark green solid is suspended in acetone (600 mL, stirred for 30 min at room temperature, and then filtered to wash away the red/brown impurities (incomplete oxidation products and excess triethylamine). The crude complex is dissolved into MeOH (300 mL, stirred for -30 min, and then filtered through celite into a 1 L Erlenmeyer flask. An additional 50 mL of MeOH and 50 mL of water are added to the flask along with acetic acid washed LZV-54 zeolite (40 g). The resulting mixture is agitated or shaken for 3 h, then filtered to remove the zeolite. The zeolite cake is rinsed with MeOH (100 mL and the rinse solution added to the filtrate. The filtrate is first concentrated to 150 mL and then loaded onto a column (30 cm length.times.2.5 cm diameter) of pretreated Amberlite IRA-904 anion exchange resin (resin in the acetate form). The eluent containing the bis-acetate lutetium(III) texaphyrin complex is collected, concentrated to dryness under reduced pressure, and recrystallized from anhydrous methanol/t-butylmethyl ether to afford 11.7 g (63%) of a shiny green solid. For the complex: UV/vis: [(MeOH) .lambda..sub.max nm (log .epsilon.)]: 354,414, 474(5.10), 672, 732; FAB MS, [IM-OAc.sup.- ].sup.+ : m/e 1106.4; HRMS, (M--OAc.sup.- ).sup.+ : m/e 1106.4330 (calcd. for [C.sub.48 H.sub.66 N.sub.5 ;O.sub.10 Lu(OAc)].sup.+ , 1106.4351). Anal. calcd. for [C.sub.48 H.sub.66 N5O.sub.10 Lu](OAc).sub.2 H2O; C, 52.74; H, 6.30; N, 5.91. Found: C, 52.74; H, 6.18; N, 5.84.

Detailed Description Text (185):

FIG. 23 illustrates the synthesis of a light activated drug conjugate. The light activated drug is a texaphyrin coupled with an oligonucleotide which is complementary to a DNA site. As a result, the light activated drug conjugate can bind the complementary DNA site and will cleave the site upon activation by ultrasound.

Detailed Description Text (192):

Synthesis of Texaphyrin Metal Complexes with Amine-, Thiol- or Hydroxy-linked Oligonucleotides

Detailed Description Text (193):

Amides, ethers, and thioethers are representative of linkages which may be used for coupling site-directing molecules such as oligonucleotides to light activated drugs such as texaphyrin metal complexes as illustrated in FIG. 24. Oligonucleotides or other site-directing molecules functionalized with amines at the 5'-end, the 3'-end, or internally at sugar or base residues are modified post-synthetically with an activated carboxylic ester derivative of the texaphyrin complex. In the presence of a Lewis acid such as FeBr<sub>3</sub>, a bromide derivatized texaphyrin (for example, Formula C of FIG. 24) will react with an hydroxyl group of an oligonucleotide to form an ether linkage between the texaphyrin linker and the oligonucleotide. Alternatively, oligonucleotide analogues containing one or more thiophosphate or thiol groups are selectively alkylated at the sulfur atom(s) with an alkyl halide derivative of the texaphyrin complex. Oligodeoxynucleotide-complex conjugates are designed so as to provide optimal catalytic interaction between the targeted DNA phosphodiester backbone and the texaphyrin.

Detailed Description Text (204):

The present example provides for the synthesis of a light activated drug conjugate. The light activated drug conjugate includes a oligonucleotide acting as a site directing molecule coupled with the tripyrrane portion of a texaphyrin as illustrated in FIG. 25.

Detailed Description Text (216):

The monoacid tripyrrane (Formula H) is condensed with a derivatized orthophenylene diamine to form a nonaromatic precursor which is then oxidized to an aromatic metal complex, for example, Formula I. An oligonucleotide amine may be reacted with the carboxylic acid derivatized texaphyrin Formula I to form the conjugate Formula J having the site-directing molecule on the T (tripyrrane) portion of the molecule rather than the B (benzene) portion.

Detailed Description Paragraph Table (1):

TABLE 1 Representative Substitutes for Texaphyrin Macrocycles TXP R.sub.1 R.sub.2 R.sub.3 R.sub.4 R.sub.5 R.sub.6 A1 CH.sub.2 (CH.sub.2).sub.2 OH CH.sub.2 CH.sub.3 CH.sub.2 CH.sub.3 CH.sub.3 O(CH.sub.2).sub.3 OH O(CH<sub>2</sub>)<sub>3</sub>OH A2 " " " " O(CH.sub.2 CH.sub.2 O).sub.3 CH.sub.3 A3 " " " " O (CH.sub.2).sub.n CON- " linker-site- directing molecule, n = 1-7 A4 " " " " O (CH.sub.2).sub.n CON- H linker-site- directing molecule A5 " " " " OCH.sub.2 CO-hormone " A6 " " " " O(CH.sub.2 CH.sub.2 O).sub.3 CH.sub.3 " A7 " " " " OCH.sub.2 CON-linker- O(CH.sub.2 CH.sub.2 O).sub.3 CH.sub.3 site-directing molecule A8 " " " " OCH.sub.2 CO-hormone " A9 " " " " O(CH.sub.2 CH.sub.2 O).sub.120 CH.sub.3 O (CH.sub.2 CH.sub.2 O).sub.3 CH.sub.2 -- CH.sub.2 --N-imidazole A10 " " " " saccharide H A11 " " " " OCH.sub.2 CON-- " (CH.sub.2 CH.sub.2 OH).sub.2 A12 " " " " CH.sub.2 CON(CH.sub.3)CH.sub.2 -- " (CHOH).sub.4 CH.sub.2 OH A13 " COOH COOH " CH.sub.2 CON(CH.sub.3)CH.sub.2 -- " (CHOH).sub.4 CH.sub.2 OH A14 " COOCH.sub.2 CH.sub.3 COOCH.sub.2 CH.sub.3 " CH.sub.2 CON(CH.sub.3)CH.sub.2 -- " (CHOH).sub.4 CH.sub.2 OH A15 CH.sub.2 CH.sub.2 CON(CH.sub.2 CH.sub.2 OH).sub.2 CH.sub.2 CH.sub.2 CH.sub.2 CH.sub.3 " CH.sub.2 CON(CH.sub.3)CH.sub.2 -- " (CHOH).sub.4 CH.sub.2 OH A16 CH.sub.2 CH.sub.2 ON(CH.sub.3)CH.sub.2 -- " " " OCH.sub.3 OCH.sub.3 (CHOH).sub.4 CH.sub.2 OH A17 CH.sub.2 --(CH.sub.2).sub.2 OH " " " O(CH.sub.2).sub.n COOH, n = 1-7 H A18 " " " " (CH.sub.2).sub.n --CON-- " linker-site-directing molecule, n = 1-7 A19 " " " " YCOCH.sub.2 -linker- " site-directing molecule Y.dbd.NH, O A20 CH.sub.2 CH.sub.3 CH.sub.3 CH.sub.2 CH.sub.2 COOH " O (CH.sub.2).sub.2 CH.sub.2 OH O(CH.sub.2).sub.2 CH.sub.2 OH A21 " " CH.sub.2 CH.sub.2 CON-oligo " " " A22 CH.sub.2 (CH.sub.2).sub.2 OH CH.sub.2 CH.sub.3 CH.sub.2 CH.sub.3 " O(CH.sub.2).sub.3 CO-histamine H

## CLAIMS:

18. The kit of claim 1, wherein the light activated drug is selected from the group consisting of porphyrins, chlorins, bacteriochlorins, isobacteriochlorins,

phthalocyanines, naphtalocyanines, porphycenes, sapphyrins, texaphyrins, derivatives of porphyrins, derivatives of chlorins, derivatives of bacteriochlorins, derivatives of isobacteriochlorins, derivatives of phthalocyanines, derivatives of naphtalocyanines, derivatives of porphycenes, derivatives of sapphyrins and derivatives of texaphyrins.

[Previous Doc](#)[Next Doc](#)[Go to Doc#](#)